2009-09-28 Tuesday Pbar Notes

Monday, September 28, 2009
11:56 AM

Stacking

- MI-52 kicker power supply replaced
  - Horizontal positions at the start of P1 line back to normal.
  - Went back to Overthruster file #22 (from #96) and ran the 120 GeV portion of the Overthruster normally overnight.
- The 8 GeV portion of the Overthruster is still not being used due to the bad BPM703. Further measurements were made by Dave Peterson with a network analyzer at F27 and it still looks like a tunnel problem.
  - Repairs will require an access into Pbar Transport enclosure which turns off NuMI and MiniBooNE, so we will look to line this up with other downtime.
- Auto-refil of Lens water system resulted in trip of Lithium Lens. Further investigation needed.
- Controls made a fix to our problem of PbarEH lumberjack not collecting data on event.
- Changed sequencer aggregates to turn off pulsed magnet charge timer D:PMAGC instead of the pulsed magnet D:PMAG itself.
- Stacking numbers
  - <stack rate> = 22.2 mA/hr
  - <production> = 24.5 e=6/p
  - <protons on target> = 6e12
  - Numbers somewhat impacted by high Accumulator transverse emittances overnight.

Transfers

- Transferred 472e10 in 43 transfers over 19 sets
  - <efficiency>= 90%
  - Efficiency impacted by high Accumulator transverse emittances overnight.

Requests

- Tony Leveling
  - Brief interruption in stacking to look at lens LCW auto-fill problem.
- Water Cage Access
  - Isolate the water cooled target water circuit to reduce radiation levels in and around the AP0 water cage. One hour of radiation cooling time and less than 1/2 hour are required to complete this job. We will want to put the lines in dry layup when some longer access opportunity presents itself. (http://www-ad.fnal.gov/cgi-worklist/worklist_form.pl?id=10721)
  - Replace collection lens conductivity meters. Meter outputs are dropping out low periodically and with increasing frequency. This is electrical work; no RAW system work is required. - 4 hours (http://www-ad.fnal.gov/cgi-worklist/worklist_form.pl?id=10720)
  - Test collection lens makeup water circuit. Determine cause of low lens supply/return flow. Requires 1 hour of cool down time and up to 4 hours to make a system modification. - 5 hours (http://www-ad.fnal.gov/cgi-worklist/worklist_form.pl?id=10719)
- Full check-out of all cooling systems
  - Need stacking pulses available
  - Very destructive to stacking
  - At least two shifts. Can be broken into two or four hour chunks.
  - Maybe we can wait to line this up with other downtime.

The Numbers

- Stacking
  - Pbars stacked: 435.00 E10
  - Time stacking: 23.42 Hr
  - Average stacking rate: 18.57 E10/Hr

- Uptime
  - Number of pulses while in stacking mode: 36507
  - Number of pulses with beam: 34795
  - Fraction of up pulses was: 95.31%

- The uptime's effect on the stacking numbers
  - Corrected time stacking: 22.32 Hr
  - Possible average stacking rate: 19.49 E10/Hr
  - Could have stacked: 456.41 E10/Hr

- Recycler Transfers
  - Pbars sent to the Recycler: 380.55 E10
  - Number of transfers : 41
  - Number of transfer sets: 19
  - Average Number of transfer per set: 2.16
  - Time taken to shoot including reverse proton tuneup: 00.18 Hr
  - Transfer efficiency: 100.00%

- Other Info
  - Average POT : 6.03 E12
  - Average production: 20.74 pbars/E6 protons

- * Missed one or more A:IBEAM7 events somewhere in the middle of the user selected time span. Calculated time shot using 13 secs per transfer.
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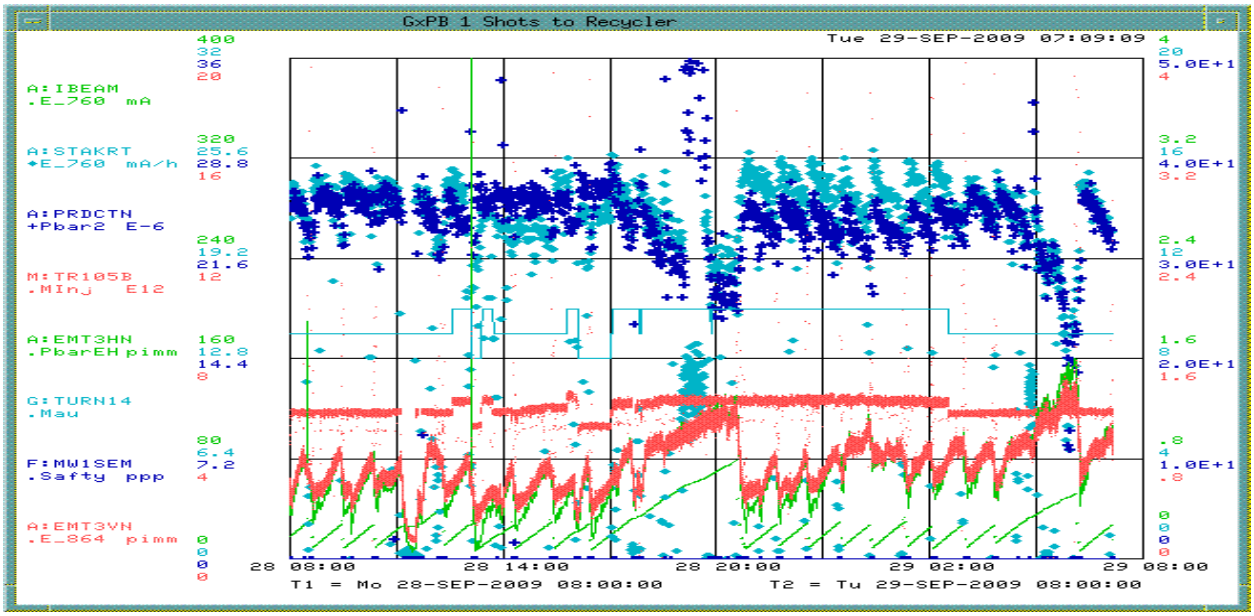
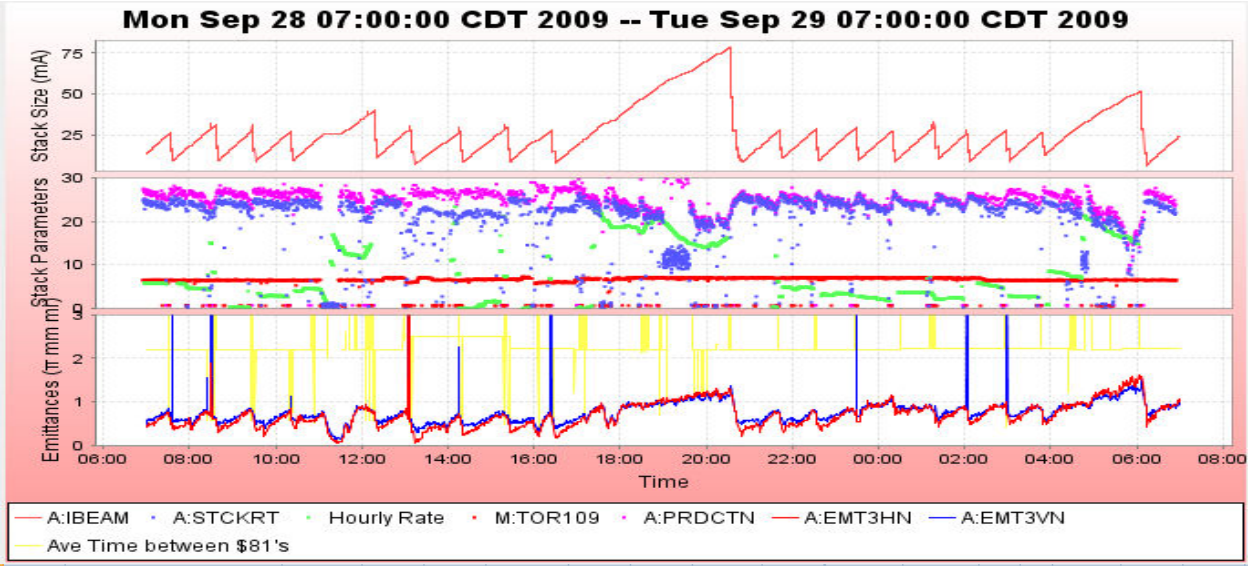
Plots





Column 1 Number_0_Pbar Transfer Shot #	Column 4 Number_3_Transfer Time		Column 21 Number_20_A:IBEAMB sampled on $91 (A:BEAM7), E10	Column 22 Number_21_A:IBEAMB sampled on $94 (A:BEAM9), E10	Unstacked (mA)	Column 23 Number_22_R:BEAMS (R:BEAME0[0]) pre xfer E10	Column 24 Number_23_R:BEAM (R:BEAME0[1]) post xfer, E10	Stashed	Acc to RR Eff	Acc to MI Eff	Acc to MI2 Eff	Transfers	Sets	Column 5 Number_4_Acc Horizontal Emittance	Column 6 Number_5_Acc Vertical Emittance	Column 8 Number_7_Acc Longitudinal Emittance
	Totals =>				472.46			426.00	90.17%	95.27%	95.25%	43	19	6.0721	6.4634	1.8598
13940	Tuesday, September 29, 2009	6:06	51.79	6.40	47.08	20.60	59.23	38.72	82.26%	90.31%	90.60%	3	1	11.867	10.434	1.748
13939	Tuesday, September 29, 2009	3:48	26.50	12.63	14.98	327.33	340.66	13.58	90.71%	95.75%	94.96%	2	1	6.002	6.556	1.951
13938	Tuesday, September 29, 2009	2:58	28.17	8.80	20.53	312.10	330.32	18.52	90.21%	96.36%	95.49%	2	1	7.352	7.335	1.872
13937	Tuesday, September 29, 2009	2:03	25.87	8.55	18.47	298.67	315.02	16.57	89.68%	94.23%	94.34%	2	1	6.708	6.798	1.871
13936	Tuesday, September 29, 2009	1:19	30.04	10.06	20.93	281.00	299.91	19.06	91.08%	96.90%	94.65%	2	1	5.793	6.519	1.863
13935	Tuesday, September 29, 2009	0:19	27.34	8.67	19.73	265.66	282.35	16.80	85.16%	90.93%	92.46%	2	1	9.278	8.689	1.883
13934	Monday, September 28, 2009	23:29	29.48	9.57	21.07	246.99	266.51	19.63	93.13%	96.64%	96.70%	2	1	5.874	6.44	1.856
13933	Monday, September 28, 2009	22:33	28.66	9.36	20.43	228.95	247.97	19.10	93.49%	97.59%	97.58%	2	1	5.48	5.821	1.862
13932	Monday, September 28, 2009	21:42	27.91	10.65	18.39	212.92	229.80	16.94	92.13%	95.15%	96.07%	2	1	5.408	6.307	1.917
13931	Monday, September 28, 2009	20:34	78.90	8.14	76.16	149.47	215.48	66.78	87.68%	94.08%	94.13%	6	1	6.477	6.932	1.974
13930	Monday, September 28, 2009	16:25	27.86	7.25	21.41	431.10	450.76	19.87	92.81%	96.58%	96.80%	2	1	4.52	4.936	1.833
13929	Monday, September 28, 2009	15:23	29.52	8.48	21.99	414.57	434.65	20.41	92.84%	96.07%	97.02%	2	1	4.903	5.72	1.871
13928	Monday, September 28, 2009	14:17	26.85	8.30	19.56	400.41	418.31	18.13	92.69%	97.56%	97.74%	2	1	4.69	5.531	1.815
13927	Monday, September 28, 2009	13:09	28.03	6.72	22.20	383.49	404.19	20.96	94.38%	97.48%	98.46%	2	1	3.964	4.295	1.8
13926	Monday, September 28, 2009	12:17	39.89	11.02	29.70	358.66	385.66	27.26	91.76%	95.23%	94.83%	2	1	5.906	6.455	1.828
13925	Monday, September 28, 2009	10:21	27.08	9.32	18.92	346.39	363.37	17.13	90.54%	96.54%	96.33%	2	1	5.48	6.4	1.867
13924	Monday, September 28, 2009	9:28	27.70	8.66	20.04	330.73	349.03	18.46	92.13%	97.61%	97.44%	2	1	5.104	6.044	1.86
13923	Monday, September 28, 2009	8:36	30.96	9.34	22.66	311.93	333.03	21.29	93.98%	97.84%	96.59%	2	1	4.985	5.548	1.864
13922	Monday, September 28, 2009	7:32	26.05	8.94	18.22	297.60	314.18	16.79	92.17%	96.65%	96.27%	2	1	5.578	6.045	1.802

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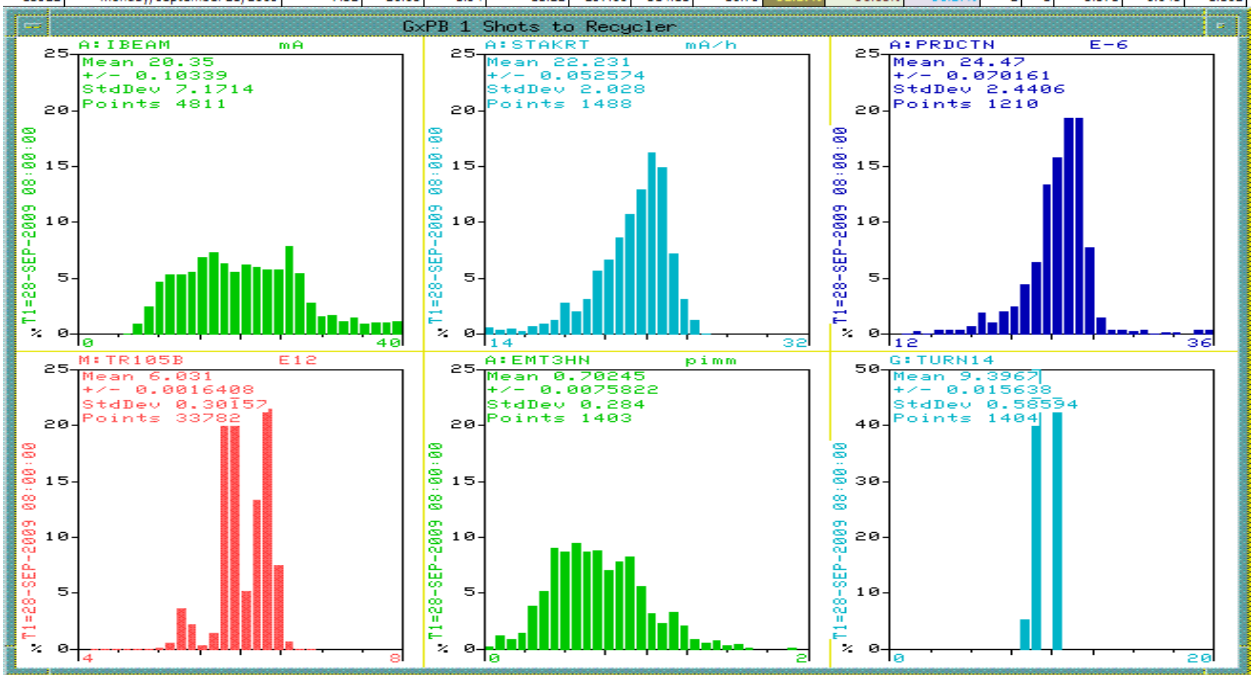

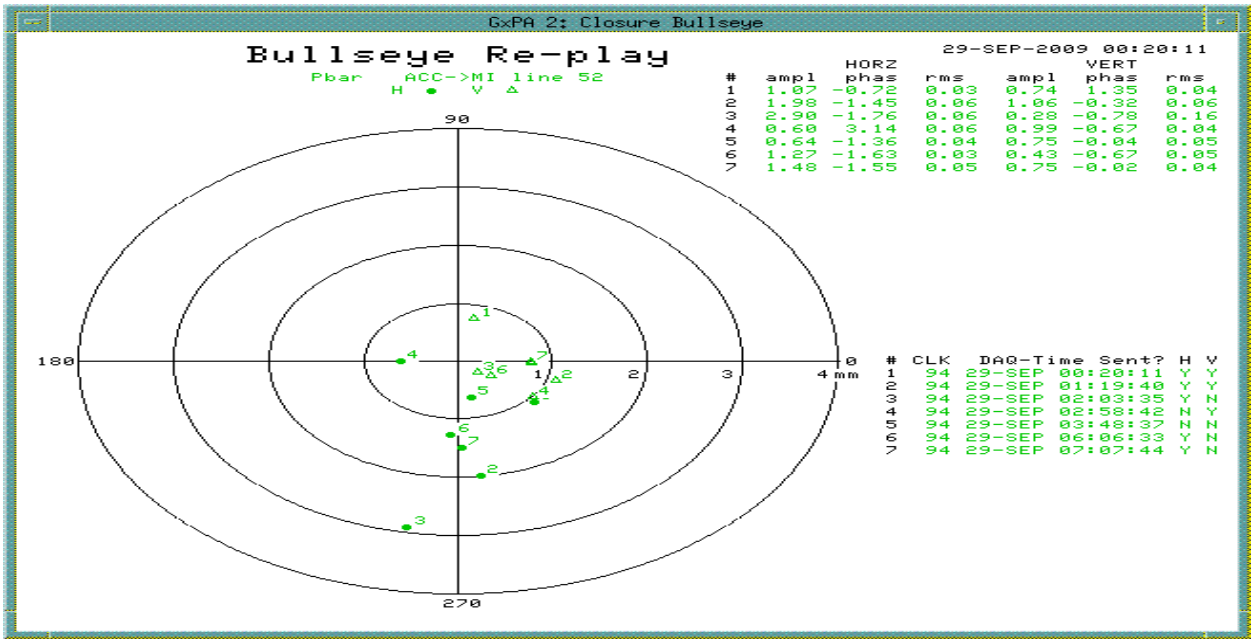
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Bullseye Re-play
Pbar ACC->MI line 52
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HORZ VERT
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2 1.98 -1.45 0.06 1.06 -0.32 0.06
3 2.90 -1.76 0.06 0.28 -0.78 0.16
4 0.60 3.14 0.06 0.99 -0.67 0.04
5 0.64 -1.36 0.04 0.75 -0.04 0.05
6 1.27 -1.63 0.03 0.43 -0.67 0.05
7 1.48 -1.55 0.05 0.75 -0.02 0.04
90
180
0
270
1
2
3
4 mm
CLK DAQ-Time Sent? H V
1 94 29-SEP 00:20:11 Y Y
2 94 29-SEP 01:19:40 Y Y
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4 94 29-SEP 02:58:42 N Y
5 94 29-SEP 03:48:37 N N
6 94 29-SEP 06:06:33 Y N
7 94 29-SEP 07:07:44 Y N